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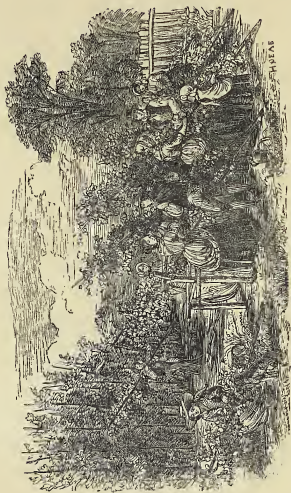
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HOP GARDEN, KENT.

A TREATISE
ON THE
CULTIVATION AND GROWTH
OF
HOPS,
IN THE KENT STYLE:

SHOWING THE CHOICE OF LAND MOST SUITABLE FOR THE GROWTH
OF HOPS; THE METHOD OF SETTING-OUT; THE DESCRIPTION OF
SET MOST BENEFICIAL, AND QUANTITY REQUIRED PER ACRE;
MODE OF CULTURE, MANURING, POLING, AND GENERAL TREAT-
MENT DURING THEIR GROWTH; WITH REMARKS ON DRYING AND
BAGGING,

BY

H. M. MARSHALL,

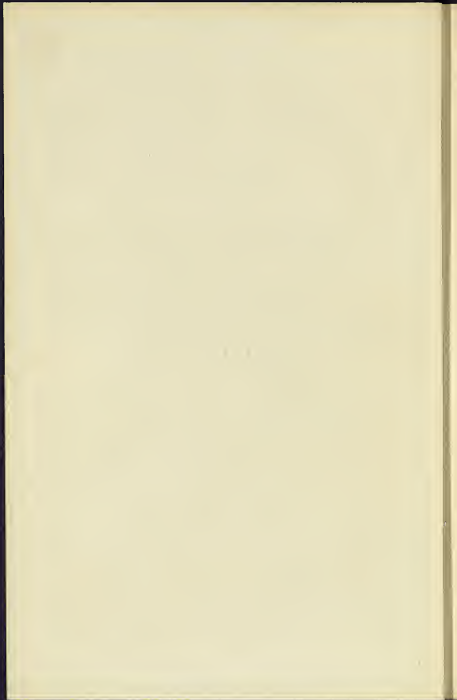
WORCESTER.

PRICE TWO SHILLINGS AND SIXPENCE.

ENTERED AT STATIONERS' HALL.

PRINTED FOR AND SOLD BY THE AUTHOR;
ALSO, BY WHITTAKER AND CO., AVE MARIA LANE, LONDON;
And may be obtained through the medium of all Booksellers.

1855.



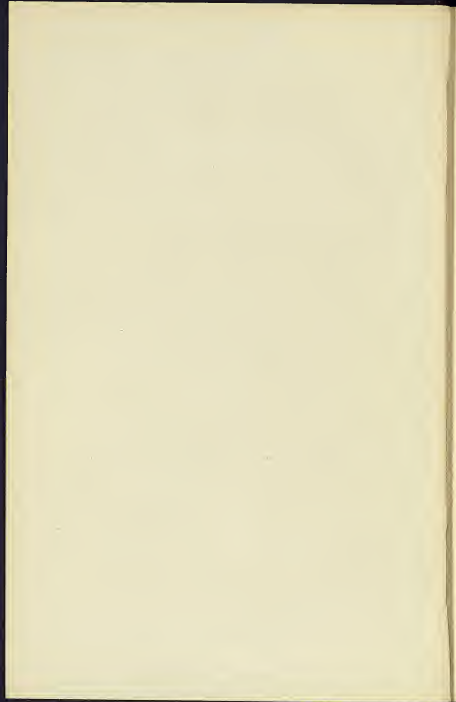
DEDICATION.

THE following production on the cultivation and management of the Hop Plant, the mode of culture recommended in which is not generally adopted in the Midland Counties, is designed more immediately to convey some practical observations on a subject of much importance. Feeling confident the information I have to give is of a kind which will prove highly advantageous to those engaged in such culture, I have been induced to publish my observations, in the hope of benefiting persons who have been unaccustomed to growing Hops in the mode advocated in the following pages.

The work has been submitted to the revision of several gentlemen, well experienced in Hop-growing, both in the Weald of Kent and Worcestershire, who have been pleased to speak of it with much approbation.

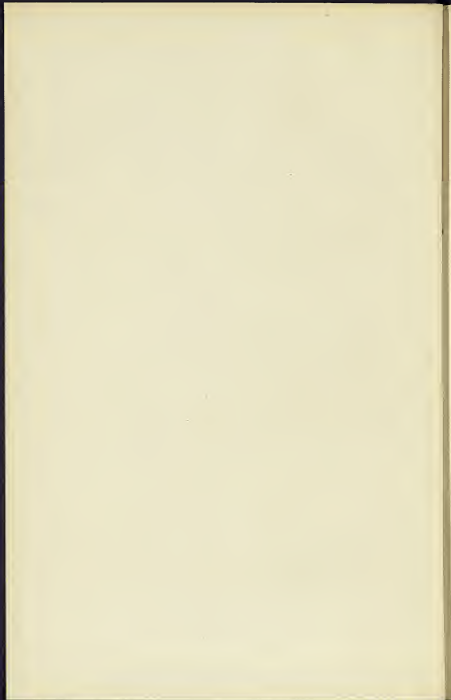
To these, my respected friends, I dedicate the work, and feel satisfied that the system advocated, if carried out, will prove highly beneficial.

J. M. H.



CONTENTS.

	PAGE
Introduction	1
Cultivation	4
Choice of Soil	4
Preparation of Ground	5
Planting	6 & 8
Choice of Sets	7
Dressing	10
Summer Cultivation	11
Improving Condition	13
Manuring	14
Poling	16
Cost of Poles	19
Tying	20
Trimming and Working the Ground	21
Watering Hops	22
Picking	23
Drying	25
Bagging	28
General Remarks	29
Injurious Effects of Blight	32
Cultivation of Crops	37
Expenses of Hop Cultivation	39
Hop Acreage of the Kingdom	40
Conclusion	41
Districts from Parliamentary Return	42
Statement of the Duties on Hops	42
Old Duty, from 1712	43
London Prices	44
Number of Acres	45
Fluctuations in the Betting on the Hop Duty	46
Hop Duty for 1854	49
Old Hop Duty, &c., in 1850, 1851, 1852, and 1853	49
Old and New Duties on Hops, in three sections	50
Injurious effects of Sulphur to Growing Hops	51



HOPS.

THEIR CULTIVATION IN THE KENT STYLE.

INTRODUCTION.

IN the observations I am about to make, it is my intention to be strictly practical; but, although those to whom my remarks will be addressed, are more interested in the information sought to be conveyed, than in perusing prefatory matter, a few introductory words may not be deemed out of place. I shall proceed then to the consideration of my subject.

Hops were introduced into England in the year 1524, from the Netherlands (Flanders and Holland). This plant in cultivation advances land to the highest point of improvement, augmenting its value £40, £50, sometimes £100 or £200 per acre, and yet

true it is that we have not enough grown to supply the wants of the Kingdom, but are compelled constantly to make use of foreign Hops, which are much inferior in quality to those grown in England. The principal cause of this I presume is that few bestow the labour and industry about them which Hop Plants require. Being managed carelessly they scarce yield a quarter part of the increase which those do that are better managed, though with little more cost. Another cause is that the Hop Plant is subjected to various attacks of the air. From the time of their springing till they are ready to be gathered, overmuch drought or wet, mildew, blight, frost, winds, &c., do them much injury, which casualties happening, make the price uncertain.

Those who have been accustomed to notice the produce of Hops in former years, will remember that the seasons when they have been most abundant, have been those in which the winter was fine, with occasional frosts and hot summers, as in 1808, and in the year of the great comet, 1811. I remember I was then at Crowborne, Goudhurst, Kent, learning the farming business, and acquiring a knowledge of all the branches of practical farming, and the culture of

hops. I can state that the Hops in those years, in Kent, were most luxuriant in growth and yield. At Great Pagehurst, Staplehurst, in Kent, I was five years at a farm, where we used to have burnt grey lime from stone dug on the farm, and white lime from chalk obtained from Hollingbourn, distant eight miles from Pagehurst. The lime was burnt with underwood, coal, rubbish, and faggots, and it took five, and sometimes six days to burn it off. It was used as much as was requisite both on the farm and on the hop land. Farmers in Kent would never be able to bring their Hops to the state of perfection they do, were it not for that range of chalk hills, reaching through Kent, from Dover to Portsmouth, the composition of which is so beneficial to that country, when burnt into lime. In 1816 I was in another part of Kent, as manager and overlooker of a farm, where there were large plantations of Hops, to which I paid great attention, and there acquired much valuable information connected with the cultivation and management of the hop plant. Also in 1817, 1818, and 1819, in the neighbourhood of Maidstone; and of late years, I have paid very particular attention to the subject, my friends being large planters.

CULTIVATION.

The Hop delights in the richest lands; a deep mould and light, if mixed with sand, is the better; a black Garden mould being excellent for it. Hops cannot in fact be cultivated to advantage, except on strong rich land of considerable depth of soil, which must be constantly manured, or otherwise little benefit is to be expected. It should be as well cleaned, and in as high a condition, as it is possible to bring it by labour and manure.

CHOICE OF SOIL.

In the cultivation of Hops the first consideration is the choice of the ground best situated and adapted for their growth. The position should be on incline lands, the S. E. by S., with plenty of water at command in summer, and sheltered by hills or rising ground from the West and North East winds, the effect of which is so prejudicial to the well-being and healthy development of the plant. By cultivating high hedges, apple trees, and artificial *lew* fences round the plantation, the injurious action of winds upon the tender plant may be counteracted to a beneficial extent.

A high thick white thorn hedge is of much service in this way. Strong rocky, or stiff clay ground is not to be recommended for Hops. Elm trees are not beneficial to the Hops, especially when they shade them from the morning sun, and prevent the free current of air.

PREPARATION OF GROUND.

In preparing ground, should the land be cold, stiff, sour, or barren, the best mode to be adopted is, about the latter end of the summer, to pare and burn it, which will do it much good. Some persons recommend sowing of turnips or beans, which make the ground on which they are planted light and mellow afterwards; but in whatever state the ground is, it should be worked at the beginning of winter, with either a plough, or a three or four prong fork, with flattened tines, made for the purpose. If a pasture is broken up, the turf should be first pared thinly off by a paring plough, and then followed and buried by the furrow plough, at least ten inches deep; (if in the Hereford system, the ridges on which the Hops are planted should be double ploughed or trenched with a spade or fork, the latter method, though most

expensive, is certainly the best,) this should be done early in the winter, giving the ridges a coat of well-mellowed manure. As soon after a hard frost as the earth becomes dry and mellow, the lands on which the sets are to be planted should be ploughed with a three-bout ridge; and in proper season harrowed and well rolled, ready for setting out the hills in rows, which should be two-and-a-half to three feet apart, and the alleys, seven feet wide. One thousand stocks to the acre.

PLANTING.

The ground being in good tillage, and well rolled, the business of setting out should now be proceeded with, early in the spring. It is a general practice to plant out sets in the beginning of March or April, but the best experienced planters advise bedded sets to be planted in October, before the cold winter, that they may take root in December, or settle against the spring. For the purpose of planting, a line of stout cord, from 150 to 200 yards long, should be prepared; at intervals of six-and-a-half or seven feet, as parties may wish, should be placed, by means of a needle, small pieces of red worsted in the line, to serve as

marks. With this prepared line should be formed the largest square the field is capable of producing, (it may be a four or five acre piece,) and at every red mark a pointed stick, twelve inches long, should be placed. Of these sticks a large quantity should be prepared, according to the number of acres about to be planted, reckoning 1,200 to the acre; they should be spread on the field, ready for setting out, at the red marked line. In forming the square, take care that it be exactly formed. The filling up of the centre should be proceeded with, as the setter goes on, at the proper distance intended to have the hills apart.

CHOICE OF SETS.

I would advise planters to be particular in the sort of sets they intend to use. It is advisable to have different sorts, as in an unfavourable year some kinds of set are more hardy, and can stand the severity of the weather better than others. There is also another advantage: in a plantation of twenty or thirty acres and upwards, it is advisable to have about four or five acres planted with an early sort, such as Jones's, Mathon's, or Cooper's Whites, which, as soon as

quite ripe, should be gathered in, if within five or six days the better. Then Goldman's and the Grapes, which is a later description of Hop. The Cholegate are a smaller and late Hop, but fetch a good price in the market. The sets I would recommend are the Kent Cholegates, Canterbury Goldings, Jones's, Mayfield Grapes, Mathon, and Cooper's Whites. Bedded sets are best for planting, as by using them is gained one year's plant, since the set which is cut in the spring of 1855, and bedded, will be ready for planting in the autumn following. The cost of cut sets would be sixpence per hundred, and it would take six thousand per acre. In planting the sets there should be five to each hill, four-and-a-half inches at bottom and two-and-a-half at top, with one in the centre, thus, $\begin{smallmatrix} * & * \\ * & * & * \end{smallmatrix}$ In Herefordshire sets are double the price, and they use about three or four to the hill.

PLANTING, &c.

The plants being prepared, the ground moist, and the weather favourable, at each stick before mentioned, one or two spadefuls of earth should be taken out. The mould for the hills should next be prepared,

which could be skimmed lightly from the surface of the intervals, or alleys, of the once ploughed land, that being only taken which is perfectly fine, and filling up the hills, chopping up the ground to loosen it, and then proceeding to make up the hills with the mould already mentioned; but no new dung should be put into the hole on any account. The setter, with his dipper, should make five holes, as above mentioned, five or six inches apart, placing in the sets inclining towards each other a-top; this done, he should, with his hand, hollow the hill round pressing the earth close to each plant with his dipple, placing again the stick in the centre.

The preparation of the plantation being completed, there is little else to be done till the weeds begin to appear, and then, instead of hoeing, dig up the once ploughed intervals, and throw the earth out equally on both sides, so as to cover the ridge on which Hops are planted, and smother the rising weeds. This will add to the natural warmth of the soil, and help to enrich it, and when this is done, the hills should be weeded, and if the mould is fallen down, they should be new dressed.

Before the sets are taken out of the ground the holes in which they are to be placed must be made and prepared, if possible; but if otherwise they should be laid in cold and moist earth, and taken out as required.

DRESSING.

In the dressing of hops the following rules are necessary to be observed. The hills should be first opened, and the principal roots undermined; the dresser taking the younger roots in his hand, removing the earth with the hock or tool; in cutting them away care should be taken of the old sets. The first year, in cutting, one inch should be left on the old set; but in the second and following years, they may be cut close to the old set. Roots that grow downward must not be cut, but such as grow outwards at the side of the plant may be cut away, else they will encumber the ground. The colour of the old roots is red, that of those of the last year's growth, white. Should there be any wild hops, the whole hill should be taken up, and new planted, marking the hill with a stick at picking time, in order to prevent mistakes.

SUMMER CULTIVATION.

When the cut sets are used, no hops can be expected from them the first season, and to make the most of the ground, I would recommend planting potatoes between each row, leaving space to work the land by nidget, skimming, horse hoeing, or by hand labour. The small quantity of hop bine which will appear, may be tied in, so as to prevent its mixing with the potato haulm, and also keeping the bine from being bruised, which would injure the root for the next year's growth. After clearing the field of the potatoes, the haulm may be burnt on the ground, thus cleansing and preparing the soil for a good dressing of manure in the winter, or early in the spring.

Should a flat piece of ground be chosen for the Hop Garden, where the fields around are on an elevation, care should be taken to have at the bottom of it a good ditch, three feet deep, in order to keep the water from soaking into the garden; as the opinion is, that the land cannot well be kept too dry and warm, particularly should the winter season prove a wet one. If a ditch cannot be made at the bottom of the hilly field, above the hop ground, one should

certainly be formed at the bottom part of the garden itself; it should be at least $2\frac{1}{2}$ to 3 feet deep, which would take away all surplus drainage. Tiles should be used if ditches are not sufficient for the purpose. I know a Hop Garden, four (statute) acres in extent, situate in Kent, its site is a level, the fields surrounding it, N.E., are on rising ground; along the lower part of it is a ditch, 3 feet deep, and one on the side next to the hilly piece, 3 feet; and as an instance of the benefit derivable from draining, I may mention, that when I was in Kent, in August, 1851, I estimated, or "set" the produce of this piece at 20 cwt. per acre. I subsequently received a letter, informing me that the produce had been a ton per acre. On being in Kent in August, 1853, I again "set" the produce of the above garden at 20 cwt. per acre. After my return home, I received a communication, informing me that the produce of the four acres had been over four tons.

In June, 1852, this district was visited with severe floods. In one Hop Garden, (I speak from personal observation at the time,) ten acres out of thirteen were under water; the flood water was, at its deepest part, three feet up the poles. I watched carefully the

progress of these Hops in the succeeding year, which crop failed. I found the stocks very much injured, no doubt from the body of water lying so long on the surface of the ground, there not having been any ditch, such as I have previously described, to carry off the surface water, which ought not to be allowed to lie long on the Hop Plant. The part of the garden not flooded bore a fair crop.

IMPROVING CONDITION.

If the Hops in a plantation are old or neglected, or worn out of their prime, at the beginning of winter they should be dug round, and as much of the old barren earth taken away as possible; good mould, or compost, should be applied to the roots. If not convenient at the beginning of the winter, it should be done in January or February; such renewing mould acts as a renovation to the decaying Hop. If the ground is foul, winter digging destroys the weeds, and, combined with frost, pulverizes the ground. If Hops are in a strong condition, late dressing is most proper, as it restrains them from too early springing, which is the cause of many injuries to Hops. These should be dressed in March; some dress in the beginning of April.

MANURING.

The kind of manure generally recommended is what may be obtained by adopting the following plan:—

First,—Let the hedgerows be cleared of as much mould as possible, and ditches be made where the land lies wet and swampy. At convenient seasons, large beds should be made of the mould, earth, and mud thrown out from the ditches, ponds, and swampy places. In the spring, when the farm-yard requires clearing from the accumulation of soil during the winter, this produce should be placed on the above-mentioned beds, and upon that also should be placed, in trenches, a good quantity of lime, and this again slightly covered with mould. As soon as the lime is well slackened, the whole should, at convenience, be turned well together once or twice. When required to be used in the Hop Ground, it may be broadcast. There will be found but little in this manure of a tendency either to create insects, or increase blight; on the contrary it will destroy slugs, worms, and other insects, so injurious to the Hop Plant. Should any Hop Ground be much infested with worms and slugs, I would recommend for it a good coating of lime.

The lime should be placed in heaps, about every five or six hills apart, and covered slightly with mould till slackened. It should then be spread in the alleys and round the hills, worked in by the nidget about May or June.

There is in most rivers a good rich mud, productive of much fruitfulness when applied to land. Its value consists in the circumstance of its being a residuum of the best soils from lands washed down by the flush of rains and floods. This costs nothing, save the labour of getting it out. Mud of similar value may be found in the bottom of channels, ponds, pools, lakes, and ditches. This settlement should be laid in a heap to dry, and before it is applied to the land, lime should be placed upon it, and when slackened, it should be turned well together before using, on Hop or any kind of land. Dung laid on mould, earth, or mud, turned well together, with a good quantity of well slacked lime, is an excellent compost, and will very much improve any land, to which it is applied, wheat, barley, hop, &c., &c. Woollen rags are also of much utility, cut fine and worked into the ground. They are often carried great distances to be laid on Hop Land. One load of them, it is said, will go as far as half-a-dozen loads of the best cow dung.

POLING.

The common practice is poling as soon as the bines begin to rise and bend. Nature directs that they should seek for help as soon as they begin to creep. The shoots must be directed to the poles to which they seem most inclined, lightly tied to prevent their straying. Three poles are usually set to a hill, using a line to keep them in a straight row. They are firmly fixed in the ground by means of a crow-bar made for that purpose, four square at the bottom. The willow and poplar will frequently take root, if not well seasoned or shaved before using, for which reason they should be cut early in the winter, and exposed to the air to harden, it not being found so proper to let them put forth leaves. In placing the poles they should be spread a little a-top, as well for the convenience of air as for preventing the bines from intermixing as little as possible. Two bines are sufficient for each pole. The rest are carefully trimmed from the stocks. Great care is necessary to watch the straggling bines by top tying when wanted, to prevent them slipping down the poles, and becoming howsey. Also if the Hops be strong, poles should be obtained of suitable size and length,

for best part of the grower's profit will be lost for want of proper poles. Should the Hops be poor, smaller poles may be provided, lest the root should be impoverished. Especial care should be taken not to over-pole in the first year of plantation. In Farnham I have seen poles twenty-five feet in length, four to a hill. Also near Maidstone poles of similar number and length, with two, and in some cases three bines to a pole, (1,200 hills to an acre) and not then over-poled in a fruitful year. This season I have seen a Hop Garden, four poles to the hill, and two helpers, that is to say, six poles to the hill, (and eight bines) and those very howsey; on the longer poles there was much better prospect of Hops. When the bines begin to leave running in length and branch, and are not at the tops of the poles, it would not be amiss to nip off the tops, or divert them from the poles, that they may branch the better. This would tend more to the benefit of the plant than allowing it to extend itself in length only. It will be well to bear in mind that before drawing the poles out of the ground, the bine should be cut two or three feet above the hills, to prevent so great a flowing of the sap, which otherwise will weaken the stock. The ground should be well worked by hoeing and nidgeting, to

keep the weeds under, (particularly seeding time) and pulverizing the soil.

The planter must be content with such poles as the country he lives in affords. English fir or larch and alder poles are esteemed the best, on account of the bine more willingly climbing them, being straight and tapering in form, and their rough rind prevents the bine from slipping down. The ash is esteemed the best for lasting, especially such as grow on dry and barren lands, of many years' growth, which are known by the many circles in the bottom; they have been known to last ten or twelve years, the wood being much harder and more durable than the speedy grown poles. Some persons altogether reject forked poles, and usually cut off the forked branches, if any, as the bine is not so easily stripped off. I differ from them; the bine is not so likely to slip. In stripping the bine from the poles it must be first cut.

Before commencing poling, the poles should be dispersed among the hills, and laid between them, the largest poles being used to the strongest bine. They should be set firmly in the ground, close to the hills.

With a rammer the earth should be firmly rammed at the outside of the pole, for its further security against winds.

The poles should incline towards the south, so that the sun may better compass them, as a leaning or bending pole bears the most hops. A sufficient number of the worst poles should be reserved for supporters, as some of the poles, being overladen with bine, may break, and if they lie on the ground they soon perish. If, after some time of growing, a hill is found under or over-poled, the bine may be unwound and placed round another pole. A companion should be present to hold the bine, while the pole is pitched in; or another pole may be placed near it, and the bine brought from one pole to the other. The poles should be from 8 to 10 feet long, according to the strength of the soil.

COST OF POLES.

An English acre requires about three thousand poles, the price of which varies according to their size. In some places it is usual to give as many shillings for a hundred poles as the poles are feet

long; so that for a hundred poles of twenty feet long they give twenty shillings. A recruit of five hundred poles yearly will keep an acre of hop ground in constant repair.

TIEING.

The next work is after the bines are two or three feet out of the ground, to conduct them to such poles as are thought fit, that are nearest, or require the bines, that they may wind with the course of the sun. They should be tied gently to the poles, with prepared rushes. Care should be taken not to break the tender shoots. The morning is the most dangerous time; but when the warmth of the day strengthens them, they are not so apt to break. Much attention is required while the bines are rising up the poles, to keep them in their proper course, and when out of reach to top-tie them by steps where they require it, to prevent them from slipping down the poles. At the time of tying, care should be taken to clear away all the small useless bine and suckers; well working and nidgeting the ground. I am an advocate for digging the ground early, with a three or four-pronged fork, say in December, or

January, for the benefit of the frosts, instead of ploughing. In the counties of Kent and Sussex, such a mode as ploughing is never practised. After the ground is properly worked, I should recommend, in wet land, striking the alleys with a ridge plough, such as is used for opening water furrows and earthing up plants.

TRIMMING AND WORKING THE GROUND.

In May and June the ground should be worked well with a light iron harrow, which may be guided by a cord fixed to each of the two back corners, which the driver or conductor holds in each hand, driving the horse himself. The harrow requires to be worked twice in each alley, always keeping to the right hand of the alley, and taking care not to bruise the bine, either while nidgeting, skimming, or hoeing. The hills should be earthed up in height and breadth, burying and suppressing all superfluous shoots, suckers, and weeds, which would otherwise impoverish the ground. The hills will be preserved from the drought of the summer, and kept moist by being covered; also the hill, so far as it is covered with earth, issues forth its roots to the very surface, which proves a very great benefit to the hop. This work may be

continued throughout the summer, but more especially after rain, to apply the moist earth about the roots of the hills.

WATERING HOPS.

In a very dry spring, it would not be amiss to water the hops, before the hills are raised. Long continued drought proves a great check to the bine in its first springing. In places the early bine will make short joints and turn yellow, which is a proof the plants want rain. Being over dry, they grow weakly. Water from ponds and soakage of cattle yards is the best that can be used. In the midst of each hill a hole should be made with a pointed stick or iron thrust down the middle, and water poured in by degrees, till the hill is considered well soaked. One pailful to a hill is sufficient. The hills should then be covered with mould, which will give the bines fresh vigour, otherwise they would be small and weak and scarcely attain the usual height, which would be termed a scarcity of bine.

In dry springs and summers, hops that either stand moist, or have been watered, do much better. In

such years, they will far better requite the labour bestowed upon them, yielding a better price, by reason of their scarcity, than in fruitful years, when every ground almost produces hops, industry and ingenuity being most encouraged and best rewarded, at such times, when ignorance and sloth come off with loss. The dressing of hops, poling, directing and tying, watering, making up hills, &c., throughout the summer, seems to be a tedious task, requiring daily attention; but without these labours, little is to be gained, which makes the plant so little cultivated in some places. He who is diligent, however, and understands his business, is well paid for his trouble and expense; for two or three acres of well-managed hop ground, one year with another, amount to more advantage than fifty acres of arable land, with equal or more expense.

PICKING.

Towards the end of July, the burr appears, and at the beginning of August turns into hops, which are often ripe, in forward years that is to say, at the latter part of August, but generally at the beginning of September. At the time hops begin to change colour,

and look a little brown, and smell fragrantly, they may be considered to be ripe, and the sooner they are got in the better. Sufficient help should be obtained to keep the Oast or kiln well supplied with the proper quantity it will dry. The hops should be gathered in before they shatter, as one windy day or night may do much injury.

When the hops are ready for picking, the kind of bin of which I should advise the adoption, would be the one ordinarily used, with the addition of two cross pieces at each end, extending two feet above either end of the bin; and by having a blank pole laid across the horns, and resting the pole they are picked from against it, the pickers can work with both hands with equal facility, whereby in a fair crop, a good picker may pick twenty bushels a day. In the mode adopted in Worcestershire and Herefordshire, by cutting off the bines before commencing picking, the picker is compelled to hold the bine that is cut off in one hand and pick the hops with the other. There would be a saving of time, and also the hops would be gathered in sooner, before they became brown, by the adoption of the former plan, as will be at once seen by the careful reader. In the picking,

the hops should be kept as clean as possible from leaves, bunches, and stalks, which will more than counterbalance the advantage in weight.

DRYING.

Well drying of hops is most necessary to be observed; if they are slack or over-dried, the sample will be much injured. Four pounds of undried hops, though ripe, will make one of dry; and five pounds of hops scarcely ripe, yet in their prime, will make but one. As a rule, more hops should not be picked at one time than there is oast room to dry. With respect to the mode of drying hops, the open square hopper kiln is most recommended, whereby the hops are dried off more quickly and regularly, and are rendered of a better colour and quality. A description of the kiln may not be out of place.

If the kiln be twelve feet square on the top, it should be twelve feet high from the fire, and the staddle should be six feet and a half square; and so proportionably in other dimensions. The fire-place should be about a foot square, and over it a small door or shutter about eighteen inches square, which will

assist to regulate the heat. The bed should be made of laths or rails, very even, about an inch thick, and the same distance apart, and covered with an oast hair. On this cloth the Hops are emptied out of the hop pockets or bags, which are brought from the bins of the pickers, laying them even with a rake, about six or eight inches thick. A fire should then be made of charcoal, coke, or Welch coal, keeping it of a regular heat, using brimstone at the front of the grate. Let not the fire slacken, but rather increase it, till the hops are nearly dried, lest the moisture and sweat, which the fire has raised, fall back and discolour the hops. For these reasons chiefly it is that no cool air should be suffered to come into the kiln while the Hops are drying. After the Hops have lain about seven, eight, or nine hours, having left off sweating, and leap up when beaten with a stick, then turn them with a malt shovel or scoop made for that purpose; let them remain in this situation for two or three hours more, till every Hop is equally dried. They must not be turned while they sweat, for that will scorch and cause them to lose their colour; the fire may be diminished a little before they are turned, and renewed again afterwards—the heat should be kept as equal as

possible. It may be of service to make use of a thermometer, by marking upon which the degree of heat proper for drying hops, as soon as that degree is ascertained, by experiment, it may always after be known how to regulate the fire with great exactness, for, putting the thermometer inside the kiln for a short time, it may be observed, by the height of the mercury, when the heat is come to a right pitch, regulating the fire accordingly. As mistakes are often proving exceedingly detrimental to the hops, great attention is required by the dryer, night and day, till finished. A large malt shovelful of charcoal, thrown into the mouth of the furnace, will last an hour. When they are thoroughly dry, which is known by the brittleness of the inner stalk, (if rubbed and it breaks short,) the fire should be taken out, and the Hops shovelled from off the kiln into the cooling room, with a rake, made with a board placed at the end of a pole, another bed of green Hops should then be laid on the kiln, and the fire renewed. When these are dried off as before, they should also be laid in the cooling room, in thin layers, care being taken to exclude the air as much as possible. In a day or two they will be ready to bag. Hops laid on to horse hair cloth upon the kiln, about eight inches

thick, will take from ten to eleven hours to dry off, the drier being particularly careful to keep them properly turned during the process. A little brimstone occasionally cast into the fire, has the effect of giving to the Hops a good bright yellow colour, and also of improving their flavour. When laid in the cooling room, they should not be spread more than twelve inches in depth.

BAGGING.

The mode of bagging hops usually practised is the following: a hole is made round in the floor of the cooling room, large enough to allow a man to go up and down with ease; a hoop should then be tacked fast about the mouth of the bag with pack-thread, that it might bear the weight of the hops and the man who treads them. A bushel or two of hops should then be cast into the bag, and before the man goes in to tread them a "handful" of hops should be tied at each lower corner to serve as tassels, and give "purchase" for the removal of the pocket when it is full. The bag is then let down through the hole, and the hoop will rest above and keep the bag from slipping through. A man should then go into the

bag, and, with shoes that have no heels, commence treading the hops, by moving round with his back towards the bag, another casting in hops as fast as is required, until the bag is full. Some, in treading the hops, use a fifty-pound weight, fastened to a rope, and placed in the middle of the bag, lifting it up occasionally, to press them closer together. The pocket should then be taken away, the hoop removed, and the mouth sewn up, the two upper corners being tied with a "handful" in the same way as the two lower.

Another way to bag hops is with a machine or presser, which mode is more to be preferred.

GENERAL REMARKS.

Reverting to the hop-grower, I would say, after the crop has been thus disposed of, the course to be adopted is to strip and stack the poles for another year. These should be bound about with bine, twisted to keep them together. The alleys should be struck up to keep the ground free from standing water. In the winter, when little else can be done to the hop garden, manure should be carted in, against the

spring. If the dung be rotten, it should be mixed with earth, and should lie thus mixed till the spring, which will serve to make up the hills; but if the dung or soil be new, it should in such case be mixed, until another year, for *new dung* is very *injurious* to hops. *Ammoniacal animal hop manures** are very good on most soils, but as the soil differs so much in districts, it is impossible to lay down any certain plan. The farmer will be the best judge of what manure is suited for the soil.

In the third year, after cutting down or dressing, the hop plant having become stronger, longer poles will be required, say three, and in strong grounds, four to the hill, fourteen to fifteen feet long. Two bines to a pole will be sufficient. The working of the ground will be the same as in the preceding year, with a good dressing of the before-mentioned manure—the *hop manure* so much recommended by the *Hop Growers in Kent*,—*guano*, *rape seed*, or any *artificial*

* Mynn, Brothers and Cartwright, Manufacturers of Artificial Manure, Office, 17, Counter Street, Borough, London. Their Hop Manure, at £6 10s. per ton, is peculiarly adapted for the growth of the Hop Plant, giving it strength and fruiting qualities.

*manure.** The process of tying should be executed with much care, cultivating the strong shoots and clearing away all useless bine and suckers, as previously mentioned. I am not an advocate of the plan of stripping off the leaves to a height of two or three feet, as is practised in some years by those who are not aware of the injury thereby done, from its causing so great a flow of the sap as to weaken and injure the bine. In some seasons, when the large leaves wither away, they may be removed by the mode of cutting off at least an inch from the bine. Care should be taken in drawing poles out of the ground during picking. After cutting off the bines with the long sharp sickle hook, the "dog" (a heavy piece of wood, with iron, twelve inches long, fixed at the end with nicks or notches on it,) should be used. When fixed to the pole, the latter is by its means easily drawn out by the pole-puller. I have seen many poles broken off twelve inches, the depth they are fixed in the ground. The pole-pullers often think it

*Southall and Co.'s Chemical Manure or English Guano.—This Manure destroys the Earthworm, Slug, and Wireworm which are the most destructive enemies to the roots of Plants. Price £5 per ton. Office, Exchange Passage; or, T. Southall, 1, Lichfield Terrace, Aston Road, Birmingham.

too much trouble to draw these out, and so they break them off. With respect to the Hop Bines, comparatively useless when stripped, they may be used to shelter the cattle round the yards in winter, and in summer they may be laid at the bottom of hay ricks or stacks, for a foundation, when cheaper bedding is not at hand. Modern invention has lately found a means of turning this hitherto almost useless article to good account for the purposes of manufacture.

In the fourth year, as is well known, the Hop Plant arrives at its full perfection; afterwards its successful cultivation will depend upon the properly draining, manuring, working, and cleansing of the ground; for it will continue to yield good crops during upwards of twenty years, if it be rightly cultivated. The remarks I have previously made as regards draining, in wet seasons, will still apply for the benefit of the grower.

INJURIOUS EFFECTS OF BLIGHT.

Of the first of these may be mentioned the long-winged fly, which is so formidable and destructive an enemy; and if let alone and no effort made for its extirpation,

it breeds with great rapidity. A greater enemy often follows the fly, the green *aphis*, which becomes stronger and more difficult to get rid of; but when the negar or collier come against them, they swallow them up most greedily, the merry fly Goldin, or Lady Bird, assisting in killing and eating all they possibly can. The greatest blessing conferred in the way of getting rid of these pests, is the glorious sun, traversing the firmament. When its scorching beams come full on the enemy, it may not be improperly said of them, when subjected to its influence, in the words of the well-known song:—

“See how they fall, like motes in the sun,
And in the *alleys* lie.”

Hops are, like other vegetables, liable to various accidents and distempers, the principal and most fatal of which are the fly, the fen or mould, the mildew, and what the planters call fire-blasts.

The late Rev. Dr. Hales, treating of this subject in his excellent Treatise of Vegetable Statics, gives us the following account of the state of Hops in Kent, in the year 1725, which he received from the

late Mr. Austen, of Canterbury, who was a very great planter, and an accurate observer.

“In mid April, not half the shoots appeared above ground, so that the planters knew not how to pole them to the best advantage.

“Upon opening the hills, this defect of the shoot was found to be owing to the multitude and variety of vermin that lay preying upon the roots, and of which the increase was imputed to a long and almost uninterrupted series of dry weather for three months before. Towards the end of April many of the Hop bines were infected with flies.

“About the 20th of May there was a very unequal appearance, some bines being run seven feet, others not above three or four, some just tied to poles, and some not visible; and this disproportionate inequality in their size continued through the whole time of their growth.

“The flies now appeared upon the leaves of the forwardest bines, but not in such numbers here as they did in most other places. About the middle of

June the flies increased, yet not so as to endanger the crop; but in distant plantations they were exceedingly multiplied, so as to swarm towards the end of the month.

“From the 9th of July to the 23rd, the *Fen increased a great deal, but the flies and green aphids decreased, it raining much daily. In a week more, the fen, which seemed to be at a stand, was considerably increased, especially in those lands where it first appeared.

“About the middle of August the bines had done growing both in stem and branch, and the forwardest began to be in Hop, the rest in bloom; the fen continued spreading where it was not before perceived; and not only the leaves, but many of the burs also were tainted with it.

“About the 20th of August, some of the Hops were infested with the fen, and the whole branches were corrupted by it. Half the plantations had

* Fen is a pernicious distemper. It is a quick growing mould, or moss, which spreads itself with great rapidity, in the Hop Grounds.

escaped pretty well hitherto, and from this time the fen increased but little: but several days of wind and rain in the following week distorted the plants so that many of them began to dwindle, and at last came to nothing; and of those which then remained in bloom some never turned to Hops, whilst many of those that did, were so small, that they scarcely exceeded the size of a good large burr.

“We did not begin to pick till the 8th of September, which is eighteen days later than we began before. The crop was little above two hundred on an acre of ground and not good. The best Hops sold that year at Way Hill, for £16 the Hundred.”

In a plantation in Worcestershire the elm trees, this year, are doing much injury by weakening and checking the growth of the bine. There are many trees of large size, so situated that they shade the morning sun, and prevent a free current of air, which the Hop Plant requires (as before said.) About two hundred hills are so injured that at the present appearance will not realize over two cwt. per acre, which will be a considerable loss, as the *adjoining hills* are set, or estimated at ten cwt. per acre.

I recommend to any planter having large high elm trees on the South East side of his Hop Gardens, that the sooner they are cut down the better, as great numbers abound in this part of the country.

CALCULATION OF CROPS.

In the third year of the growth of the bine, when it is just at the tops of the poles, the grower may begin to calculate the probability of his crop, keeping in view the uncertainties, dangers, diseases, and complaints which so often affect this valuable and tender plant, and which prove so injurious to the grower.

On the first appearance of the burr, a grower is enabled to make a still better calculation of the probable yield; but he must yet have regard to the uncertainties of blight, the injurious action of the cold north-east and west winds, and frosty nights. Wet, damp weather encourages the white slugs, which are so very destructive, if their ravages are not checked by the application of a good coating of lime, as I have previously recommended. But when the hops are looking luxuriantly on the poles, then may even a

still better calculation be made as to the probable yield. Should the weather continue warm and favourable, a good judge may calculate his growth within a few hundred-weights, by adopting a system which I would submit. The mode is this:—first calculate the number of bushels it will take to make a ton of dried hops when put in the bags or pockets. I estimate that 1100 to 1200 bushels of green hops will weigh a ton of hops of middling sample, when dried and bagged.

On a statute acre of hop land in Kent, where the hills are six and a half feet apart, and there is found to be one bushel of hops to a hill of three or four poles, the crop may be estimated to turn out 20 cwt. If a hill and a half, of four poles to the hill, 15 cwt. per acre. If two hills for one bushel, 10 cwt.; if three hills ditto, $7\frac{1}{2}$ cwt.; if four hills ditto, 5 cwt.; if six hills ditto, $3\frac{1}{2}$ cwt.; and if eight hills ditto, $2\frac{1}{2}$ cwt. per acre. I have found this system of calculation to prove correct in most instances. But it must be borne in mind that the injurious effects of the wind will have a great influence on the crops, particularly where high hedges and artificial lew fences are wanted.

EXPENSE OF HOP CULTIVATION.

Of the expense per acre of cultivating the Hop Plant in the fourth year, I will now endeavour to give an estimate. I admit that the practical hop grower is pretty well acquainted with this subject; my object, however, in publishing this work is to address myself more particularly to those who are less acquainted with the cultivation and management of the plant, but who, notwithstanding, are still using farms to which hop grounds are attached. To factors and merchants, &c., &c., the information it contains will also be useful and valuable:—

	£	s.	d.
Digging, per acre	1	5	0
Cutting down, dressing, and trimming ...	0	5	0
Cost of poles on an average of one year } (10 to 12 feet long)	7	0	0
Poling, per acre (short poles)	1	0	0
Tying ditto	0	10	0
Nidgeting ditto	1	0	0
Hoeing or chopping ditto	0	10	0
Manuring, per acre	5	0	0
Striking up furrows and raking in ditto	0	3	0

	£	s.	d.
Picking, per acre of 8 cwt.	3	10	0
Stripping poles and stacking	0	6	0
Rent, per acre	1	10	0
Tithes, ditto	0	10	0
Taxes, ditto	0	5	0
Drying 8 cwt. hops, 5 pockets and making	0	16	0
Welch coal, coke, charcoal, brimstone, &c.	0	10	0
New duty on an acre of 8 cwt., nearly ...	8	0	0
	<hr/>		
	£32	0	0

HOP ACREAGE OF THE KINGDOM.

It may not be uninteresting to the reader for me to give a statement of the districts in which Hops are cultivated, from Parliamentary returns; number of acres of land in cultivation from 1807; average growth per acre; old duty, from 1712; London prices, from 1800; duty on importation of Foreign Hops; also the fluctuations in the betting on the Hop duty in the months of May, June, July, August, September, and October, from the year 1810 to 1854 inclusive. This statement will be found on pages 42, 43, 44, 45, 46, 47, 48, and 49.

The highest price Hops were ever known to fetch was in 1817; from September 29th to December 25th in that year, they were £20 to £35 per cwt., average £27 10s.; from March 25th to June 24th, £27 to £32, average £24. In 1848 the lowest price ever known was the average, in London, of £2 15s. per cwt. The lowest duty ever known to have been paid for the whole kingdom, was in 1725, viz.—£6,526 8s. 3d.; and this year it is likely to be the highest.

CONCLUSION.

In bringing my remarks on this interesting subject to a conclusion, I will content myself with leaving what I have advanced in the preceding pages to the unbiassed judgment of those best qualified to form an opinion, both as regards its merits and utility. If I have succeeded in proving that the mode of cultivating the Hop Plant, adopted in Kent and the Western Counties, is better than that practised in the more Northern parts it would prove more permanently advantageous, I am of the Country, and that by following out such system satisfied that my exertions have not been in vain; and I hope they will receive that amount of encouragement from a discerning public to which they may be considered fairly entitled.

DISTRICTS FROM PARLIAMENTARY RETURN.

1st ROCHESTER.

2nd CANTERBURY.

3rd.—SUSSEX.

4th.—WORCESTER. { Worcester, Hereford, Mid
Wales, Stourbridge.

5th.—FARNHAM. { Hants, Isle of Wight, Surrey,
Salisbury.

6th.—KINGDOM. All the rest.

STATEMENT OF THE DUTIES ON HOPS.

		PER CWT.		
		£	s.	d.
Original Duty, 1d. per lb.		0	9	4
Three 5 per Cents. on ditto ...		0	1	4 $\frac{5}{8}$ $\frac{1}{20}$
Old Duty.....		0	10	8 $\frac{5}{8}$ $\frac{4}{20}$
1802.	April 30th ... 1 $\frac{1}{4}$ d. $\frac{8}{20}$ per lb	0	12	7 $\frac{18}{20}$
New Duty		1	3	4
1805.	July 10th ... Reduced $\frac{1}{2}$ d. per lb.	0	4	8
Present Duty		0	18	8
5 per Cent		0	0	11 $\frac{16}{20}$
		0	19	7 $\frac{16}{20}$
Duty on Importation of Foreign Hops £2 5s. per Cwt.				

OLD DUTY.

YEAR.	£	s.	d.	YEAR.	£	s.	d.
1712.....	30,278	16	0	1754.....	112,000	0	0
1713.....	23,018	12	2	1755.....	82,157	0	0
1714.....	14,457	5	11	1756.....	48,106	0	0
1715.....	44,975	7	6	1757.....	69,713	0	0
1716.....	20,354	16	5	1758.....	72,896	0	0
1717.....	54,669	2	8	1759.....	42,115	0	0
1718.....	15,005	15	8	1760.....	117,992	12	4
1719.....	90,317	19	0	1761.....	79,776	13	6
1720.....	38,169	15	7	1762.....	79,295	14	1
1721.....	61,362	6	5	1763.....	88,315	16	7
1722.....	49,443	0	4	1764.....	17,178	1	4
1723.....	30,279	9	6	1765.....	73,778	7	6
1724.....	61,271	7	2	1766.....	116,445	14	6
1725.....	6,526	8	3	1767.....	25,997	9	8
1726.....	85,013	13	9	1768.....	114,002	0	0
1727.....	69,409	2	10	1769.....	16,201	11	7
1728.....	41,494	8	9	1770.....	101,131	2	11
1729.....	46,441	0	0	1771.....	33,143	5	5
1730.....	44,419	16	8	1772.....	102,653	4	2
1731.....	22,600	0	0	1773.....	45,847	12	10
1732.....	35,135	0	0	1774.....	138,887	1	0
1733.....	70,000	0	0	1775.....	41,597	0	3
1734.....	37,416	0	0	1776.....	125,691	0	0
1735.....	42,745	0	0	1777.....	43,581	13	2
1736.....	46,462	0	0	1778.....	159,801	2	10
1737.....	56,492	10	6	1779.....	55,800	0	0
1738.....	86,575	17	6	1780.....	122,724	4	4
1739.....	70,742	6	7	1781.....	120,218	9	10
1740.....	37,875	12	2	1782.....	14,895	12	5
1741.....	65,222	8	4	1783.....	75,716	14	4
1742.....	45,550	15	1	1784.....	94,359	17	8
1743.....	61,072	12	9	1785.....	112,684	5	9
1744.....	46,708	12	9	1786.....	95,973	14	8
1745.....	34,635	0	0	1787.....	42,227	3	4
1746.....	91,879	19	6	1788.....	143,168	0	0
1747.....	60,000	0	0	1789.....	104,063	7	4
1748.....	87,000	0	0	1790.....	106,841	9	4
1749.....	36,305	19	1	1791.....	90,059	1	10
1750.....	65,000	0	0	1792.....	162,112	19	5 ¹ / ₂
1751.....	73,954	0	0	1793.....	22,619	13	4 ¹ / ₂
1752.....	79,000	0	0	1794.....	203,663	2	0 ¹ / ₂
1753.....	81,000	0	0	1795.....	82,342	19	5

OLD DUTY.—Continued.

YEAR.	£	s.	d.	YEAR.	£	s.	d.
1796.....	75,223	17	8	1803... ..	199,205	1	10 $\frac{1}{2}$
1797.....	157,458	11	0 $\frac{1}{2}$	1804.....	177,617	9	9
1798.....	56,032	1	6 $\frac{3}{4}$	1805.....	32,904	12	7 $\frac{3}{4}$
1799.....	73,279	15	3	1806.....	153,102	15	10 $\frac{1}{2}$
1800.....	72,928	7	6 $\frac{3}{4}$	1807....	100,071	15	2
1801.....	241,227	8	5 $\frac{1}{2}$	1808.....	251,089	15	7
1802.....	15,463	10	5 $\frac{3}{4}$	1809.....	63,952	18	2 $\frac{3}{4}$

LONDON PRICES.

YEAR.	£	s.	d.	YEAR.	£	s.	d.
1800.....	17	17	0	1828.....	5	12	0
1801.....	5	18	0	1829.....	8	8	0
1802.....	10	12	0	1830.....	12	4	0
1803.....	6	6	0	1831.....	5	18	0
1804.....	5	5	0	1832.....	8	13	0
1805.....	8	0	0	1833.....	7	4	0
1806.....	7	0	0	1834.....	6	3	0
1807.....	5	10	0	1835.....	4	15	0
1808.....	5	18	0	1836.....	5	0	0
1809.....	4	4	0	1837.....	5	1	6
1810.....	3	0	0	1838.....	5	17	0
1811.....	6	6	0	1839.....	4	10	0
1812.....	13	0	0	1840.....	13	11	0
1813.....	8	8	0	1841....	6	6	0
1814.....	8	8	0	1842.....	4	8	10
1815.....	7	10	0	1843.....	6	0	9
1816.....	13	13	0	1844....	7	3	0
1817.....	27	0	0	1845.....	6	10	0
1818.....	7	0	0	1846....	5	0	0
1819.....	4	8	0	1847.....	3	10	0
1820.....	4	4	0	1848.....	2	15	0
1821.....	4	15	0	1849.....	7	10	0
1822.....	4	4	0	1850.....	3	10	0
1823.....	13	0	0	1851.....	6	10	0
1824.....	7	0	0	1852.....	4	5	0
1825.....	19	0	0	1853.....	11	11	0
1826.....	5	0	0	1854.....	20	0	0
1827.....	5	0	0	1855.....			

NUMBER OF ACRES.

Number of Acres from 1807.	Avg. Growth per Acre.		Number of Acres from 1807.	Avg. Growth per Acre.	
	<i>Cwts. gra.</i>	<i>lbs.</i>		<i>Cwts. gra.</i>	<i>lbs.</i>
1807.. 38,218	5	1 19 $\frac{1}{2}$	1832.. 47,101	6	0 12 $\frac{1}{2}$
1808.. 38,436	13	2 2 $\frac{1}{2}$	1833.. 49,187	6	2 11 $\frac{1}{2}$
1809.. 38,357	3	1 17 $\frac{1}{2}$	1834.. 51,273	7	2 18
1810.. 38,265	3	3 25 $\frac{1}{2}$	1835.. 53,816 $\frac{1}{2}$	9	0 5 $\frac{1}{2}$
1811.. 38,401	8	1 24 $\frac{1}{2}$	1836.. 55,422	7	1 26 $\frac{1}{2}$
1812.. 38,700	1	2 15	1837.. 56,323	6	2 6 $\frac{1}{2}$
1813.. 39,521	6	3 15 $\frac{1}{2}$	1838.. 55,045	6	1 22
1814.. 40,575	7	0 17 $\frac{1}{2}$	1839.. 52,305	8	0 15
1815.. 42,150	6	0 9 $\frac{1}{2}$	1840.. 44,805	1	2 8
1816.. 44,219	2	0 19 $\frac{1}{2}$	1841.. 45,769	6	2 11
1817.. 46,293	2	3 25 $\frac{1}{2}$	1842.. 43,720	8	0 4
1818.. 48,593	8	1 27 $\frac{1}{2}$	1843.. 43,156	6	1 16
1819.. 51,014	9	3 8 $\frac{1}{2}$	1844.. 44,485	6	2 3
1820.. 50,048	5	3 25	1845.. 48,053	6	3 6
1821.. 45,662	7	0 1 $\frac{1}{2}$	1846.. 51,948	9	2 20
1822.. 43,766	9	2 15 $\frac{1}{2}$	1847.. 52,328	8	2 6
1823.. 41,458	1	1 5 $\frac{1}{2}$	1848.. 49,232	8	3 20
1824.. 43,419	7	0 11	1849.. 42,798	3	3 12
1825.. 46,718	1	0 8 $\frac{3}{4}$	1850.. 43,127	11	0 18
1826.. 50,471	11	0 5 $\frac{1}{2}$	1851.. 43,244	6	0 22
1827.. 49,485	5	3 14 $\frac{3}{4}$	1852.. 46,157	9	3 15
1828.. 48,365	7	1 12 $\frac{1}{2}$	1853.. 49,367	5	3 1
1829.. 46,135	1	1 25	1854.. 53,823	1	2 15
1830.. 46,726	3	3 17	1855..		
1831.. 47,129	7	2 20			

The number of Acres for the year 1855 not having been issued by the Excise Office when this went to press, it may be filled up by the Purchaser.

It is judged that the number of Acres this year, viz., 1855 in Plantation, is increased to 58,000 Acres.

FLUCTUATIONS IN THE BETTING ON THE HOP DUTY.

The Numbers stand for Thousands, as 100 should be 100,000

	MAY.			JUNE.			JULY.			AUGUST.			SEPTEMBER.			OCT.	IT PAID IN OLD DUTY.		
	4th	14th	24th	31st	7th	14th	24th	30th	7th	14th	24th	31st	7th	14th	24th			30th	7th
1810	150	130	130	120	120	110	95	70	80	82	85	82	82	85	92	94	84	80	73,514 6 10
1811	140	98	88	115	130	135	130	150	165	160	165	150	150	148	150	150	150	150	157,085 19 2½
1812	100	95	95	90	85	80	75	65	63	56	45	47	40	42	40	42	40	29	30,561 19 3
1813	140	120	120	120	110	140	125	130	135	140	150	150	143	140	135	140	130	132	131,482 9 2
1814	115	105	105	100	105	110	125	135	148	147	154	152	150	140	142	152	146	144	140,292 6 2
1815	100	100	84	84	75	85	100	80	70	85	85	75	85	85	95	90	84	90	123,878 16 3½
1816	140	130	130	140	145	145	150	156	150	135	124	130	120	110	95	95	60	50	46,302 15 9½
1817	150	135	135	120	100	85	90	95	100	95	90	80	83	88	71	80	88	84	66,522 2 5½
1818	150	140	140	135	150	135	140	140	140	125	95	80	125	130	150	150	145	150	199,465 13 6½
1819	120	98	98	110	120	112	98	110	125	140	150	170	200	210	220	225	230	230	242,076 2 2
1820	140	130	130	130	115	100	130	140	130	100	85	75	85	75	80	90	85	75	138,380 9 6½
1821	110	115	115	100	110	110	110	120	150	145	155	155	180	195	200	190	180	180	154,609 10 8½
1822	100	100	96	95	110	100	130	125	130	135	130	125	125	140	160	180	200	200	203,724 14 9½
1823	105	100	120	105	90	75	70	68	60	45	30	32	30	29	20	28	28	23	26,097 11 2½
1824	110	120	100	120	125	135	130	138	125	150	145	150	145	150	135	158	180	155	148,632 0 0½
1825	120	110	85	60	55	55	45	38	26	18	17	20	24	18	20	25	30	24	24,317 0 11½
1826	120	130	140	145	150	160	170	185	190	190	195	200	205	215	220	245	250	250	269,331 0 9½
1827	121	110	60	58	55	55	38	45	75	110	110	100	90	110	120	130	125	140	140,848 6 2½
1828	125	130	55	100	140	150	165	175	150	190	190	180	180	131	160	200	205	185	172,027 10 11½

FLUCTUATIONS IN THE BETTING ON THE HOP DUTY.—Continued.

MAY.				JUNE.				JULY.				AUGUST.				SEPTEMBER.				OCT.		IT PAID IN OLD DUTY.
4th	14th	24th	31st	7th	14th	24th	30th	7th	14th	24th	31st	7th	14th	24th	31st	7th	14th	24th	30th	7th	14th	
1829	130	120	130	120	80	70	60	62	46	38	38	35	36	45	32	30	37	37	35			39,866 10 6½
1830	120	110	100	100	130	120	115	95	90	85	100	145	120	100	90	93	105	105	95			88,047 8 1½
1831	120	115	105	120	130	140	150	140	140	137	137	140	140	145	140	150	175	182	182	165		174,864 10 1½
1832	130	130	128	130	120	135	150	175	160	150	150	150	150	166	150	150	145	142	138	130		139,018 4 3½
1833	130	130	140	150	170	165	170	170	170	170	180	190	167	175	195	195	155	160	155			156,905 7 0
1834	130	120	110	100	95	100	95	100	80	80	90	95	105	118	135	150	158	166	172			189,713 14 2½
1835	120	125	125	130	155	170	185	200	210	200	195	220	225	220	230	225	245	255	250			235,207 2 11½
1836	130	150	165	160	165	175	190	220	245	240	225	200	190	185	195	205	205	190	185			200,332 12 11½
1837	150	150	155	155	155	150	153	155	160	165	200	200	200	190	190	195	190	180	180			178,578 3 0½
1838	155	160	165	165	160	150	130	140	160	175	175	180	165	170	150	155	160	155	150			171,556 8 10½
1839	150	150	150	150	165	165	160	185	200	185	200	200	200	200	210	230	230	230	220			205,537 7 7½
1840	150	150	155	150	150	140	120	90	80	90	45	40	40	35	25	32	28	32	32			34,091 16 1½
1841	145	145	150	145	145	150	155	160	160	155	160	165	160	165	170	175	165	160	160			146,159 1 6½
1842	140	140	140	113	150	145	135	145	135	140	130	140	150	150	150	150	150	155	160			169,776 6 0½
1843	140	140	140	140	140	140	140	140	130	140	135	130	130	130	140	140	150	140	135			133,431 18 3½
1844	150	150	150	150	140	140	145	155	155	145	145	135	140	135	130	125	130	130	125			140,322 17 2½

TREATISE ON HOPS.

FLUCTUATIONS IN THE BETTING ON THE HORSE DUTY.—Continued

[illegible]

HOP DUTY FOR 1854.

DISTRICTS.	TOTAL DUTY.			OLD DUTY.			Per Cwt.		
	£	s.	d.	£	s.	d.	Old Duty	9	7 $\frac{1}{2}$
Rochester..	29,169	14	3	15,973	17	10	New "	7	1 $\frac{1}{2}$
Canterbury	14,679	14	4 $\frac{1}{2}$	8,038	17	10 $\frac{1}{2}$	5 per Cent.	0	10
								17	7 $\frac{1}{2}$
Total Kent	43,849	8	7 $\frac{1}{2}$	24,012	15	8 $\frac{1}{2}$	1 Cwt. per Acre on		
Sussex	22,225	16	2	12,171	5	6	1,000 Acres yields		
Worcester ..	14,792	5	0 $\frac{1}{2}$	8,100	10	4	£483 Old Duty.		
Farnham ..	5,605	14	5 $\frac{1}{2}$	3,071	15	4	The Worcester Dis-		
Essex		3	16				trict comprises Here-		
North Clays	14	0	9	13	3	0	ford, Stourbridge, Mid		
Kingdom ..	8	6	7 $\frac{1}{2}$				Wales, & Worcester.		
							Essex District—Essex		
Total..	86,499	8	4 $\frac{1}{2}$	47,369	9	10 $\frac{1}{2}$	and Suffolk. North		
New Duty				35,012	4	7 $\frac{1}{2}$	Clays—Derby, Lin-		
Additional Duty				4,117	13	10 $\frac{1}{2}$	coln, and Sheffield.		
							Kingdom—Barnstable		
				£86,499	8	4 $\frac{1}{2}$	Cornwall, Gloucester,		
							Grantham, Reading,		
							and Surrey.		

OLD HOP DUTY, &c., IN 1850, 51, 52, & 53.

	1850.			1851.			1852.			1853.		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Rochester.....	84,266	4	7	49,492	3	3	97,150	0	2	61,084	13	10
Canterbury	47,058	10	7	22,368	17	1	52,746	17	0	33,627	18	0
Total Kent	131,324	15	2	71,861	0	4	149,896	17	2	94,712	11	10
Sussex	63,284	12	7	25,790	8	5	63,640	7	11	38,668	1	8
Worcester	19,540	14	2	18,956	13	9	12,617	12	6	11,261	6	1
Farnham	16,527	14	10	11,139	8	11	16,307	7	9	6,909	15	0
Essex	979	6	8	1,105	4	5	1,200	11	6	807	12	5
North Clays.....	708	5	9	395	12	2	942	1	1	225	7	4
England	210	17	5	332	5	0	219	4	6	92	6	0
Total	232,576	6	7	129,580	13	0	244,824	2	5	152,677	0	4

The Old and New Duties on Hops set forth in Three Sections. First, before the 1-10th, a deducted therefrom for the Tare of the Clothing. Secondly, the Net Duties as charged to the Planter. Thirdly, the Amount of the Tare deducted from the Planter's Growth, being added to the Second Section, is a proof to the whole,—each part is calculated at per Pound, per Hundred, and per Ton.

	Per lb.			Per Cwt.			Per Ton.					
	£	s.	d.	Dec.	£	s.	d.	Dec.	£	s.	d.	Dec.
FIRST SECTION.												
The Old Hop Duty, before the 1-10th is deducted therefrom												
The New ditto before the ditto ditto												
Both the Old and New Hop Duty before the 1-10th is deducted therefrom												
SECOND SECTION.												
The Old Hop Duty after the 1-10th is deducted therefrom												
The New ditto after the ditto ditto												
Both the Old and New Hop Duties with the 1-10th struck off as charged to the Planter }												
THIRD SECTION.												
The amount of the 1-10th struck off from the Old Duty for the Tare of the Clothing												
The ditto of the ditto from the New ditto for ditto												
The ditto of both Duties struck off from the Planter's gross weight												
The Tare being added to the Net Duty is proof for the whole												

INJURIOUS EFFECTS OF SULPHUR TO
GROWING HOPS.

The application of sulphur to the growing crops of Hops, with the view of checking the spread of mould, has been found to be productive of very serious loss to brewers; and hop planters will do well to discontinue the practice.

It would appear that while sulphur, in moderation, applied in vapour during the process of drying hops, produces no deleterious effects; yet when actually incorporated into the plant by application during its growth, it impregnates the beer with its flavour to such an extent as to render it unsaleable.





WORCESTER:
PRINTED BY JOHN STANLEY, SIDBURY AND SIDBURY PLACE.

OLD HOP DUTY FROM THE YEAR 1854.

(Continued from Page 48, with the number of Acres of Land in Cultivation, &c., &c.)

	Number of Acres.	Amount of Old Duty.	Average Growth per Acre.			Hops Exported. c.	Hops Imported. c.
1854	53,823	£47,369	1	2	15	12,062	119,040
1855	57,757	398,635	12	3	12	21,100	24,662
1856	54,527	266,899	9	0	16	15,095	15,987
1857	50,974	228,294	8	1	12	12,625	18,701
1858	47,601	254,001	9	3	19	40,131	13,000
1859	45,665	328,214	13	1	15	12,081	2,219
1860	46,271	53,488	2	1	7	7,243	68,917
1861	47,000	114,701	2	1	21		

ESTIMATE.

1862	48,000	160,000	3	1	9		
1863	49,000	150,000	3	0	7		
1864	50,000	220,000	4	0	0		

QUANTITIES OF FOREIGN HOPS EXPORTED FROM
THE UNITED KINGDOM IN THE YEAR 1859.

Countries to which Exported—

	c.	q.	lbs.
Hamburg	83	3	12
Holland	12	1	23
Belgium	209	1	7
France	6	0	10
	311	2	24

QUANTITIES OF FOREIGN HOPS IMPORTED INTO
THE UNITED KINGDOM IN THE YEAR 1859.

Ports into which Imported—

	c.	q.	lbs.
London	2,117	0	6
Dover	0	2	22
Liverpool	0	2	12
Leith	101	2	11
	2,219	3	23

Countries from which Imported—

	c.	q.	lbs.
Denmark	66	2	14
Hanover	67	1	5
Hanse Towns	1,842	2	25
Holland.....	5	2	26
Belgium	184	1	21
France	0	0	2
Turkey	0	2	12
British India	0	0	14
Tasmania	0	1	20
Peru	51	3	24
	2,219	3	23

QUANTITY OF FOREIGN HOPS CHARGED WITH DUTIES
OF HOME CONSUMPTION IN THE UNITED KING-
DOM IN THE YEAR 1859.

c.	q.	lbs.
1,969	2	26

QUANTITY OF FOREIGN HOPS REMAINING IN WARE-
HOUSE UNDER BOND IN THE UNITED KINGDOM
ON THE 1ST DAY OF JANUARY, 1860.

c.	q.	lbs.
3,555	0	19

On making my annual tour to the Hop Plantations of Kent, Sussex, and Worcestershire, in August and September last, I was quite convinced of the great benefit of Lime in the growth of Hops. My nephew, at Rolvenden, Kent, grew five tons of Hops on one piece of four statute acres; he had used Lime as manure on young ground, the second year of polling. Another relation, at Beltring, near Yalding, Kent, grew this year (1864), 70 tons of Golding Hops, off little over 90 acres.

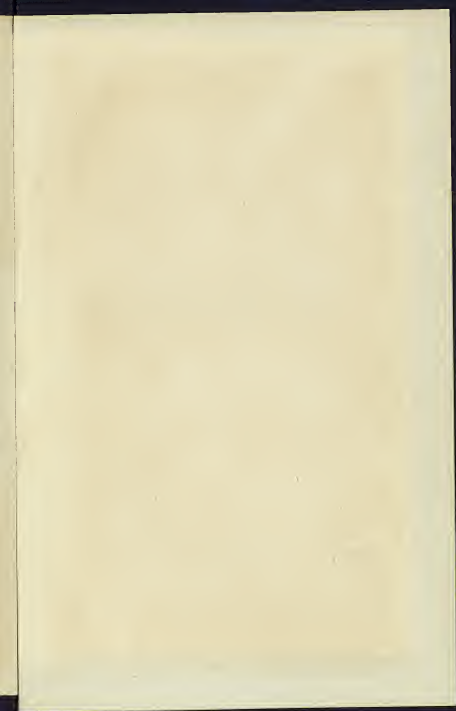
I am a great advocate for tanking of poles, whereby there is a considerable saving effected. Its effect is to make them last longer. The time occupied in the operation of pickling is twenty-four hours, and the number at each time 120. The depth submerged from 15 to 18 inches; the cost 3s. 6d. per 100; that of the composition of tar 5d. per gallon.

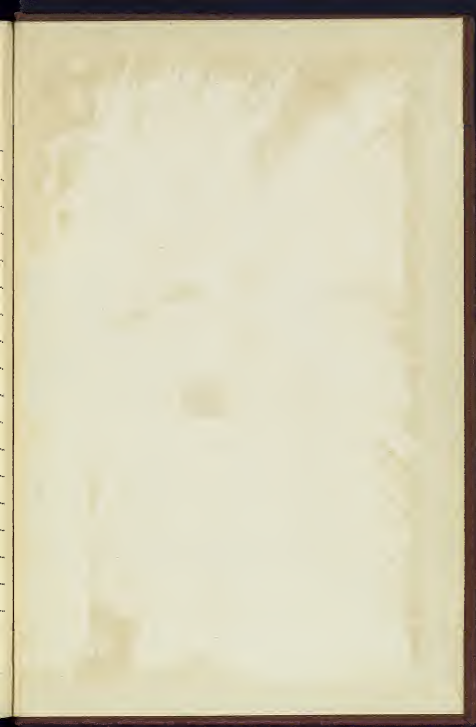
I estimate the old duty this year at £220,000, and the acreage at 50,000. In comparing my estimation of acreage in page 45, it will be found that I was within 243 acres of the Parliamentary return, out of an average of 5,000, in the year 1855.

The discontinuance of the Hop Duty on English and Foreign grown Hops is of great advantage to the Planter.

J. M. M.

SOLD BY DEIGHTON & SON, HIGH STREET, WORCESTER.







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